D.P.U. 93-42

Investigation by the Department on its own motion as to the propriety of the rates and charges set forth in the following experimental tariffs: M.D.P.U. Nos. 524 and 525, filed with the Department on February 12, 1993 to become effective March 1, 1993 by Cambridge Electric Light Company.

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I. INTRODUCTION

On February 12, 1993, pursuant to G.L. c. 164 § 94, Cambridge Electric Light Company ("Cambridge" or "Company") filed with the Department of Public Utilities ("Department"), a petition for approval of rates and charges for electric service under tariffs No. 524 (Large General Secondary Service) and No. 525 (Large General 13.8 KV Service) to become effective March 1, 1993. The proposed tariffs establish experimental rates as an alternative to the Company's currently effective Rates G-2 and G-3. The Company states that it will measure potential load management impact and system cost savings that result from the proposed experimental rates. The petition was docketed as D.P.U. 93-42 and the effective date of the rates was suspended until September 1, 1993.[1] The Company's current rates and charges for electric service were approved by the Department effective June 1, 1993.

Cambridge, a wholly-owned subsidiary of Commonwealth Energy System ("ComEnergy"), serves approximately 53,000 retail customers in the City of Cambridge, and sells power at wholesale to the Belmont Municipal Light Department. ComEnergy is an exempt holding company under the Public Utility Holding Company Act of 1935. ComEnergy's other subsidiaries, affiliates of Cambridge, include Commonwealth Electric Company ("Commonwealth"), Canal Electric Company ("Canal"), Commonwealth Gas Company, Hopkinton LNG Corporation, Commonwealth Energy Service Company ("ComEnergy Service"), and Commonwealth Energy Steam Company.

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[1] Initially the effective date of the proposed rates was suspended until June 1, 1993. On May 26, 1993, the Department resuspended the effective date of the proposed rates until no later than September 1, 1993 in order to further investigate the propriety of the rates and charges. See D.P.U. 93-42.

Pursuant to notice duly issued, a public hearing was held at the offices of the Department on July 21, 1993 to afford interested persons an opportunity to be heard. An evidentiary hearing was also held at the offices of the Department on that same date. The Department granted the petition for leave to intervene filed by The Energy Consortium. No other petitions for leave to intervene were filed.

In support of its rate proposal, the Company sponsored the testimony of Henry C. LaMontagne, manager of rate design for Com/Energy Service. The evidentiary record includes six exhibits submitted by the Company, ten exhibits submitted by the Department, seven responses to record requests issued by the Department, and one response to a record request issued by the Energy Consortium. No party filed briefs.

II. The Company's Proposal

Cambridge proposes two experimental rates, Rate X-1 and Rate X-2, to be available to customers who would otherwise take service on Rate G-2 or Rate G-3, respectively, or Interruptible Rate I-1 (Exh. CELC-6, at 1, 5; Tr. at 10).[2] Provisions in the Company's Rates X-1 and X-2 would allow customers to begin taking service on or before February 28, 1994 (Exh. CELC-6, at 1, 5; Tr. at 17). The proposed term of the rates is not less than twelve consecutive months and not more than 24 consecutive months (Exh. CELC-6, at 4, 7; Tr. at 18). Cambridge proposes to limit the total load served under each rate to 20,000 kilovolt-amperes

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[2] Exhibit CELC-6 consists of revised rate schedules for Rate X-1 and Rate X-2. The exhibit contains: (1) a four-page proposed Rate X-1 tariff, M.D.P.U. No. 524; (2) a three-page proposed Rate X-2 tariff, M.D.P.U. No. 525; (3) a one-page rate design workpaper for Rate X-1; and (4) a one-page rate design workpaper for Rate X-2. For purposes of citing, the Department numbered each page in Exhibit CELC-6 one through nine, corresponding to the order listed above.

("KVA") in order to minimize the Company's exposure to potential revenue loss (Exh. CELC-6, at 1, 5; Tr. at 52). Cambridge states that in the event a revenue loss takes place it will not seek any recovery of such revenues, but would petition the Department to terminate the rate after each customer had received service under the experimental rates for at least twelve months (Tr. at 63).

The proposed experimental rates include a customer charge, a demand charge and energy charges, which are differentiated by day type - A, B, and C, and by time of day - peak, shoulder, and off-peak (Exh. CELC-6, at 1, 5). The Company proposes the three day types based on the Company's probability of peak (Exh. CELC-1, at 1). Based on its analysis of system peak loads during 1992,[3] Cambridge determined that high-cost day-type A would occur no more than 45 days during the year, normal-cost day-type B would occur up to 200 days during the year, and low-cost day-type C would occur no less than 120 days during the year (id.; Tr. at 43-44; RR-DPU-1). Cambridge states that the day type for each day will be determined by the Company and made available to customers via a toll free number after 3:00 p.m. on the preceding day (Exhs. CELC-1, at 2; CELC-6, at 2, 6). Should the Company fail to make such a determination by 3:00 p.m., the day type will be "B" by default (id.).

Rates X-1 and X-2 are designed based on the revenue requirements and billing determinants for Rates G-2 and G-3, respectively, as approved in Cambridge Electric Light Company, D.P.U. 92-250 (1993) (Exh. CELC-6, at 8-9). In designing its proposed rates, the

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[3] The Company originally analyzed system peak loads for calendar year 1990 in order to determine the number of days during the year that will be designated as day-type A, day-type B and day-type C. In response to Department Record Request 1, which asked the Company to analyze 1992 system peak loads, Cambridge indicated that the that the use of different years had no effect on its originally proposed designations.

Company first set the customer charges of Rates X-1 and X-2 to be the same as the current customer charges of Rates G-2 and G-3. Next, the Company set the demand charges of Rates X-1 and X-2 to equal the sum of (1) the full marginal distribution cost, and (2) one-half of the marginal transmission cost of Rates G-2 and G-3[4] (Exh. CELC-6; Tr. at 21-25). In order to arrive at the energy charges for Rates X-1 and X-2, Cambridge multiplied the sum of the marginal production cost and the remaining one-half of the marginal transmission cost[5] by the number of KVA billing units for Rates G-2 and G-3. This produced a demand revenue, which the Company allocated to day type and time-of-use periods. First, the Company allocated 70 percent of the demand revenue to day-type A, 30 percent to day-type B, and nothing to day-type C. Second, the Company allocated 70 percent of the day-type revenue to the peak-period hours, 30 percent to the shoulder-period hours, and nothing to the off-peak hours[6] (Tr. at 22). Third, the Company converted the allocated demand revenues into energy charges by dividing these revenues by the kilowatthour ("KWH") billing units in each day type and time-of-day period. Finally, since the experimental rates are designed to recover the same revenue as Rates G-2 and G-3, Cambridge

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4 The Company proposed to maintain the existing rate structure with respect to the demand charges for each rate by pricing the first 100 KVA of demand at one-half of the calculated demand charge. Demands in excess of 100 KVA are priced at the full demand charge (Exh. CELC-6).

5 The Company indicated that it chose a 50 percent split of marginal transmission cost in order to reflect the fact that marginal transmission costs are made up of two pieces: (1) off-system transmission by others, which the Company characterizes as distribution-related; and (2) local transmission in Cambridge (Exh. DPU-2, at 2; Tr. at 32).

6 The Company stated that the 70 percent and 30 percent allocations are based on a NEPOOL formula used to weight peak and average loads, respectively (Exh. DPU-2; Tr. at 37).

converted the revenue requirement that was not recovered through the customer, demand, and energy charges into a per-KWH adder, and applied this to the preliminary energy charges in order to arrive at the final energy charges proposed by the Company (Exh. CELC-6; Tr. at 23-24).

The Company provided the Department with bill impacts for G-2 and G-3 customers moving to the respective experimental rates, assuming no change in consumption patterns (RR-DPU-4(c)-4(d)). The impacts demonstrate that some low load factor customers would receive a rate decrease by switching to the proposed experimental rate while most high load factor customers would receive a rate increase by switching to the proposed experimental rate (id.; RR-DPU-6, at 2). According to Cambridge, it is not possible to maintain revenue neutrality across all levels of load factors, because these impacts are caused by the rate design necessary to implement a real-time pricing scheme, i.e., shifting revenue collection from the demand charge to energy charges (RR-DPU-6, at 1). The Company points out that, although the impacts are not uniformly revenue neutral across all combinations of demand and energy usage levels, the average price for high load factor customers is less than that for low load factor customers. According to Cambridge, the proper comparison is the average price per KWH at different load factor levels within a rate schedule as opposed to comparing the average price between rate schedules (id. at 2).

III. The Company's Argument in Support

The Company contends that the purpose of the experimental rates is not to provide a different price for the same usage, but rather to allow for savings to be achieved by a customer shifting use to a less expensive time (RR-DPU-6, at 1). If customers respond to the high day-type

A prices by reducing load, the Company claims that it will avoid establishing new costly peak loads and that customers' bills will be reduced commensurately. Conversely, the Company asserts that if customers opt to buy through the high-cost days, revenues will more closely track costs (Exh. DPU-2 at 2).

The Company maintains that the proposed experimental rates are similar to its interruptible rate in that customers can control their load in response to price signals. Cambridge also asserts that the experimental rates are superior to the interruptible rate because the interruptible rate does not afford customers any degree of flexibility in their response to the utility's determination of the existence of periods of high cost or capacity shortage, since the level of performance under the interruptible rate is fixed and contracted for in advance and the incentive to curtail usage is penalty avoidance (Exhs. CELC-1, at 2; DPU-5, at 1). Further, Cambridge asserts that the ratio of potential revenue loss to cost savings is significantly less for the experimental rates than for the interruptible rates during this period of excess generation capability (id.). Interruptible customers receive the discount regardless of whether the Company interrupts their service. The experimental rates, however, require customers to either reduce load during high-cost times or to pay the higher cost of service during those times (id.).

In support of its proposal, Cambridge contends that the purposes of offering the experimental rates are to: (1) test customer acceptance of this type of rate; (2) measure its efficiency in tracking cost savings with revenue reduction; (3) measure its potential load management impact and system cost savings; and (4) determine the administrative feasibility of implementing variable pricing under this format (Exh. DPU-4). Cambridge asserts that it will

analyze its experience with implementing the experimental rates to determine if such rates are practicable from the standpoint of participating customers, non-participating customers, and shareholders (id.).

With regard to the implementation of the experimental rates, the Company states that it will notify all G-2 and G-3 customers of the availability of the experimental rates and stop soliciting customers six months after the experimental rates' effective date of September 1, 1993 (id.). Since the proposed experimental rates are optional, the Company maintains that only customers who expect to benefit will opt for service under them. Cambridge asserts that its experimental rates were designed closely after a Virginia Power Company's Variable Pricing Rate recently in effect, which the Company characterizes as a successful experiment (Exhs. CELC-1, at 1; CELC-4; DPU-2, at 1).

IV. Analysis and Findings

The Department's goals for utility rate structure are efficiency, simplicity, continuity, fairness, and earnings stability. In order to meet these goals, two objectives must be met when designing rates: (1) rates should generate revenues covering the cost of serving that class; and (2) rates should be based on marginal cost. Cambridge Electric Light Company, D.P.U. 92-250 (1993); Western Massachusetts Electric Company, D.P.U. 91-290 (1992); Fitchburg Gas and Electric Light Company, D.P.U. 90-122 (1990). Cambridge designed Rates X-1 and X-2 based on the revenue requirement for Rates G-2 and G-3, respectively, as found appropriate in Cambridge Electric Light Company, D.P.U. 92-250-A (1993). The Company also designed the demand charges of its proposed experimental rates based on marginal cost as found appropriate in

Cambridge Electric Light Company, D.P.U. 92-250 (1993). Thus, the Company has met the Department's rate design objectives.

The Department notes, however, that although Rates X-1 and X-2 are designed to elicit a change in consumption patterns, some low load factor customers would experience a rate decrease moving from the standard rate to the experimental rate without any change in their consumption patterns. Nevertheless, the primary goal of the proposed rates is to determine whether such rates result in overall system cost savings. Because the proposed rates are (1) experimental in nature, (2) limited in duration and load served, (3) designed to be revenue neutral on an overall basis, and (4) any lost revenues resulting from the implementation of the rates will not be recovered from the Company's ratepayers, the Department will allow the Company to file experimental rates consistent with the schedules submitted as Exhibit CELC-6.

In addition, the Department directs Cambridge to: (1) fully inform G-2 and G-3 customers of all real and potential positive and negative implications associated with switching to the experimental rates, and to be available for customer inquiries throughout the term of these rates; (2) notify the Department by letter at the end of the solicitation period and indicate the number and type of customers who opted to take service under Rates X-1 and X-2; and (3) provide the Department with an assessment of the experiment as promptly as possible upon its conclusion.

V. ORDER:

Accordingly, after due notice, hearing and consideration it is

ORDERED: That the rates and charges for electric service under M.D.P.U. tariffs No.

524 and No. 525 filed by Cambridge Electric Light Company on February 12, 1993 be and hereby are DISALLOWED; and it is

FURTHER ORDERED: That Cambridge Electric Light Company may file new schedules of rates and charges consistent with the schedules submitted as Exhibit CELC-6 to be effective September 1, 1993; and it is

FURTHER ORDERED: That Cambridge Electric Light Company shall comply with all other orders and directives contained herein.

By Order of the Department,